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REMARKS

Favorable reconsideration and allowance of the claims of the present application are respectfully requested.

In the outstanding Office Action, the Examiner rejected claims 1-6, 8-11, and 13-18 under 35 U.S.C. §103(a) as allegedly obvious over the combination of Applicants' admitted prior art (hereinafter "AAPA") and U.S. Patent No. 5,287,003 to Van Andel et al. (hereinafter "Van Andel") or European Patent Application No. 251347 to Ponjée et al. (hereinafter "Ponjée"). Specifically, the Examiner asserted that the AAPA discloses all the limitations recited by claims 1-6, 8-11, and 13-18 except a bi-layer capping coating comprising a first layer of silicon nitride and a second layer of amino silane, that Van Andel and Ponjée both disclose a bi-layer capping coating layer comprising a first layer of silicon nitride and a second layer of amino silane, and that it would therefore be obvious to use the bi-layer capping coating disclosed by Van Andel and Ponjée in the structure disclosed by the AAPA to yield Applicants' claimed invention.

Applicants respectfully traverse the Examiner's claim rejections, for the following reasons:

Claim 1, from which claims 2-6, 8-11, and 13-18 depend, positively recites: (1) a layered structure having a terminal layer that includes at least one metallic component, and (2) a bi-layer capping coating comprising a first layer of silicon nitride "entirely on" the terminal layer including the at least one metallic component.

As expressly conceded by the Examiner in the outstanding Office Action, the AAPA fails to disclose any bi-layer capping coating comprising a first layer of silicon nitride, much less a bi-layer capping coating comprising a first layer of silicon nitride that is entirely on the terminal layer of the layered structure.

The Van Andel reference discloses a semiconductor chip 10 having terminal aluminum bonding pads 18 and a bi-layer coating that comprises a silicon nitride layer 20 and an amino silane layer formed by silanation of the silicon nitride surface (see Van Andel, FIG. 2, column 3, lines 66-68, and column 4, lines 8-10).

However, Van Andel expressly discloses that the silicon nitride layer 20 "ha[s] apertures at the location of the bonding pads 18" (see Van Andel, column 3, lines 66-68). Therefore, it is clear that the silicon nitride layer 20 disclosed by Van Andel is not "entirely on" the terminal bonding pads 18.

In the outstanding Office Action, the Examiner asserted that the AAPA discloses an amino silane layer 200 that is entirely over a terminal layer 103 that includes at least one metallic component and that the proposed substitution of the amino silane layer 200 of the AAPA with the bi-layer coating of Van Andel would provide a first layer of silicon nitride entirely on a terminal layer that includes at least one metallic component.

Applicants respectfully disagree with the Examiner's reasoning.

It has been well established that if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the modification or combination is inappropriate and cannot be used to support a *prima facie* case of obviousness. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

In this case, the Van Andel reference is related to a semiconductor chip 10 that comprises aluminum bonding pads 18 that are electrically connected to the lead frame 14 by metal wires 15 (see Van Andel, Figs. 1 and 2, column 2, lines 34-35 and column 4, lines 45-47). The electrical connection between the aluminum bonding pads 18 and the metal wires 15 is ensured by the presence of the apertures in the silicon nitride layer 20 at locations over the bonding pads 18,

through which the aluminum bonding pads 18 and the metal wires 15 can directly contact each other and therefore be electrically connected with each other.

However, if the silicon nitride layer 20 extended entirely on the aluminum bonding pads 18, as suggested by the Examiner, the aluminum bonding pads 18 and the metal wires 15 would become electrically isolated by the silicon nitride layer 20 and would no longer be electrically connected to each other. Consequently, the semiconductor chip 10 would no longer be electrically connected to the lead frame 14.

Therefore, the proposed modification of the Van Andel reference or combination thereof with the AAPA, as suggested by the Examiner, would change the principle of operation of the Van Andel invention. The proposed modification or combination is thus inappropriate and cannot be used to support a *prima facie* case of obviousness.

The Ponjée reference discloses a semiconductor device 1 having terminal contact pads 2 and a bi-layer coating that comprises a silicon nitride layer 3 and an bonding agent layer 6 formed of an amino silane (see Van Andel, FIG. 1, column 3, lines 10-11, and lines 35-50).

Similar to Van Andel, the Ponjée reference also discloses that it is desirable to make electrical connections with the contact pads 2 on the semiconductor device 1, and that in order to manufacture electrically connections with the contact pads 2, apertures 5 are formed in the overlaying polyamide layer 4, and the silicon nitride layer 3 is removed locally by a suitable etching treatment (see Ponjée, column 1, lines 30-32, column 2, lines 16-18, and column 4, lines 14-19). Therefore, it is clear that the silicon nitride layer 3 in the final structure of Ponjée is also not "entirely on" the contact pads 2, by rather contains apertures through which electrical connections can be made to the contact pads 2.

In the outstanding Office Action, the Examiner also asserted that the proposed substitution of the amino silane layer 200 of the AAPA with the bi-layer coating of Ponjée would provide a first layer of silicon nitride entirely on a terminal layer that includes at least one metallic component.

However, if the silicon nitride layer 3 of Ponjée was not locally removed to form apertures therein but was allowed to extend entirely on the contact pads 2 in the final structure of Ponjée, as suggested by the Examiner, no electrical connections could be made to the contact pads 2, and the semiconductor device 1 of Ponjée would become completely isolated.

Therefore, the proposed modification of the Ponjée reference or combination thereof with the AAPA, as suggested by the Examiner, would change the principle of operation of the Ponjée invention. Such a proposed modification or combination is thus inappropriate and cannot be used to support a *prima facie* case of obviousness.

In summary, the proposed modification of the Van Andel and Ponjée references or combination thereof with the AAPA cannot be used to support the §103 rejections against claims 1-6, 8-11, and 13-18 of the present application. Correspondingly, Applicants hereby request the Examiner to withdraw the §103 rejections and to issue a Notice of Allowance in Applicants' favor.

If any issues remain outstanding, incident to the formal allowance of the application, the Examiner is requested to contact the undersigned attorney at (516) 742-4343 to discuss same, in order that this application may be allowed and passed to issue at an early date.

Respectfully submitted,



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